August 1966

EMO

NATIONAL DIGEST

Joint United States/Canada Civil Emergency Planning Committee

Reflections on Civil Defence and Survival

Regional Directors at Conference

Taking No Chances

Peacetime Role for EMO Welcome

CANADA EMERGENCY MEASURES ORGANIZATION

EMO NATIONAL DIGEST

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In addition to publishing articles which reflect Canadian Government policy the Digest may also publish articles by private individuals on subjects of current interest to the emergency measures programme. The views of these contributors are not necessarily subscribed to by the Federal Government.

Director General: C. R. PATTERSON *Editor:* B. L. PERRIER

ROGER DUHAMEL, F.R.S.C.
QUEEN'S PRINTER AND CONTROLLER OF STATIONERY
OTTAWA, 1966

JOINT UNITED STATES/CANADA CIVIL EMERGENCY PLANNING COMMITTEE

The following documents were presented at the annual meeting of the Joint United States/Canada Civil Emergency Planning Committee, held in Ottawa on June 7, 1966. Governor Farris Bryant, Director of the Office of Emergency Planning and Mr. W. P. Durkee, Director of the Office of Civil Defense headed the group of eight senior United States officials; Canada's senior emergency planners were headed by Mr. C. R. Patterson, Director General, Canada Emergency Measures Organization, and Chairman of the meeting.

Review of United States National Civil Emergency Planning Activities Since Last Meeting (OEP Report CEPC D/1-66)

The past year saw many significant accomplishments in civil emergency preparedness planning, not only at the national level but by State and local government as well. Some of the more important aspects are summarized in the following items. A much more complete picture is presented in the Fifteenth Annual Report of the Activities of the Joint Committee on Defense Production of the Congress of the United States.

National Level

Emergency Management of Resources

OEP's planning provides for a central organization for the management of resources, an Office of Defense Resources (ODR). This office would assist in the establishment of national goals, and on behalf of the President would direct, control and coordinate activities relating to the central management of resources. President Johnson approved this concept on June 30, 1964, and instructed the Director of the Office of Emergency Planning to develop the detailed plans for organization, staffing, and other arrangements for standby organizations which could be activated in an emergency, if the President should so desire. ODR has progressed from a Presidentially approved concept to a nearly completed standby agency with organizational structure, staffing requirements, and emergency operating documents and procedures. Initial emphasis was on ODR as a standby agency for use in a situation involving nuclear attack on the U.S. However, at the present time emphasis and priority is being given to achieving a capability to respond quickly and effectively to limited war contingencies. Standby ODR documents delineating general policy and assigning responsibilities to Federal agencies have been developed, as have functional and organizational structure and a staffing pattern for the national office of ODR. Additional Executive Reservists are being recruited to fill key ODR positions. OEP actions for implementing the ODR concept are to be substantially completed for limited war by June 30, 1966. The scheduled date for general war readiness is June 30, 1967.

Our experience in meeting the demands arising from the Viet Nam situation has proven the value and workability of the Defense Materials System as a means of assuring that critical defense production needs are met. This system, administered by the Department of Commerce, provides the mechanism for the allocation of key materials and facilities, and the establishment and enforcement of priorities in the performance of defense contracts as necessary in support of national defense. A recent review of the system which resulted in internal improvements and in simplification of the reporting requirements imposed on industry was timely, particularly in view of the sharply increased activity over the past few months.

The resource management computer model known as Program Analysis for Resource Management (PARM) was completed and is now operable as a planning and management tool in preparedness activities against the contingency of nuclear war. Following an attack, the National Resource Evaluation Center would simulate the workings of the economy, identify feasible production goals and predict shortages and critical bottlenecks before they occur so that alternative action can be taken in advance. We intend to have this model adapted to limited war preparedness by June 30, 1966.

Development and Maintenance of Essential Resources

A supply/requirements study for nuclear war and reconstruction was completed in February 1966. This study is providing the basis for the work now underway to establish stockpile objectives for nuclear war and reconstruction. Substantial progress was made in determining requirements for the current Survival Items List which was issued in November, 1964. The items on this list are "those items without which large

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segments of the population would die or have their health so seriously impaired as to render them both burdensome and nonproductive." Supply/requirements analyses were conducted and requirements determined for about 85% of all survival items. Only about 30 items requiring special surveys are still outstanding.

National Defense Executive Reserve

Considerable progress was made in the National Defense Executive Reserve Program—a program to assure the availability of executive leadership and talent for key positions during periods of national emergency. In February 1965, OEP issued guidance to Federal Departments and agencies having major mobilization assignments and requiring Reservists to fill key positions. As of April 1966, the NDER had a total enrollment of approximately 3,600 against a planned total membership of 5,000. Emphasis is being given to bringing in younger members who can benefit from the experiences of present members—some of whom have been through the experiences of World War II and the Korean Emergency. In addition, more intensive and sophisticated training programs are underway.

Program Development and Coordination

The results to date of our efforts to use the five-year planning and programming cycle to achieve national civil preparedness objectives have been most gratifying. We are developing definitive levels of preparedness to be achieved in resource or service areas which cross departmental and agency lines. Illustrative of our progress is the fact that in the area of transportation the 15 agencies principally involved have agreed on a five year program toward achieving the national transportation objectives.

The emergency health services preparedness program has been thoroughly reviewed by a group of experts from the private sector and by an intra-agency group composed of representatives of the Bureau of the Budget, the Office of Science and Technology, the Department of Defense, and the Department of Health, Education and Welfare, and chaired by OEP. The recommendations resulting from the review are being implemented and will cause some major program adjustments. Also, the President has taken action to cope with the critical shortage of manpower faced by the United States in carrying out its commitment to improve health care for its citizens. On May 7, 1966, the President established, by Executive Order 11279, "The President's Committee and National Advisory Commission on Health Manpower." The defense mobilization aspects of this problem are given due recognition by the inclusion of the Secretaries of Defense and of Health, Education and Welfare, and the Directors of the Office of Emergency Planning and of the Selective Service System in the membership of the Committee.

State and Local Governments

Emergency Management of Resources

Under contracts with the Federal Government, plans and a standby capability for resource management for general war, including nuclear attack on the U.S., are being developed by 48 states, the District of Columbia, Puerto Rico, Guam, and the Virgin Islands. Guidance and assistance are being furnished by appropriate Federal Agencies under OEP leadership. OEP has distributed an organization and planning guide, an example state plan, and a manual containing procedures for state exercises to test and improve their plans.

Considerable progress has been made at State levels in implementing the Continuity of Government program and in the development of Resource Management Plans, but, as the States achieve acceptable levels of preparedness, greater effort must be directed toward helping local governments improve their ability to cope with emergencies. An agreement has been entered into with the Office of Civil Defense so that this office will assist in the development of local emergency Resource Plans within the States.

OEP, in conjunction with the Council of State Governments has developed suggested state legislation for Post-Attack Resources Management. Virginia is the first State to enact this legislation and other states are reviewing their existing statutes to determine whether or not their Civil Defense Act should be amended and the suggested state legislation introduced.

In conjunction with the Comprehensive Program, a four-stage schedule has been set up for the testing of the State Plans for emergency preparedness. The States and OEP are currently cooperating in an effort to complete Stage II testing in each State. This test is an organized, one or two-day meeting of key representatives of emergency organizations, such as manpower, transportation, petroleum, etc., as well as State and local officials and Federal agency representatives. To date, 24 States have conducted a Stage II test with 12 planning tests in the next three months.

Continuity of Government

OEP, assisted by the Council of State Governments, has sponsored a package program of six sample legislative acts and a constitutional amendment which provides the authority for State and local action to insure continuity of civil government, if the U.S. is subjected to nuclear attack. To date, 49 States have adopted this program in whole or in part. All 50 States have emergency operating facilities. Some 2,200 local emergency operating facilities have been established.

The following was reported orally by Governor Farris Bryant, Director of OEP at the annual meeting of the Joint US/Canada Civil Emergency Planning Committee, to supplement the information contained in the preceding OEP Report.

Economic Surveillance

In August 1965, OEP established an Economic Surveillance Committee to advise the Director concerning the impact of the Viet Nam buildup on production, inventory accumulation, the availability of manpower, and the general level of prices, with particular reference to their impact on the mobilization effort.

Federal Disaster Assistance Program

Legislative Developments. On November 1, 1965, the President approved PL 89-313, an act which authorizes the Commissioner of Education to provide financial assistance for the restoration or replacement of public school facilities damaged or destroyed in a major disaster declared under PL 875. The Act transfers the primary responsibility for restoration of public schools damaged in major disasters from the OEP to the Office of Education and authorizes permanent repairs or replacements and contributions to current operating expenses for a five-year period on a reduced basis each year. The new authority expires June 20, 1967. At that time, its operation in relation to other disaster assistance programs will be examined to determine whether it should be continued or revised.

Following Hurricane Betsy last fall, the President approved PL 89-339 which directs the Secretary of Housing and Urban Development to undertake a study of alternative programs to help provide financial assistance to property owners for losses from floods and other natural disasters. The study is to include alternative methods of Federal disaster insurance. If a program is developed following the study which is due in August, 1966, the benefits will accrue to the private sector and will complement the PL 875 program.

S. 1861 (Bayh Bill) would give more Federal assistance to private individuals following major disaster by liberalizing existing Federal lending programs now carried out by the Small Business Administration, Farmers Home Administration, and others. Since even the most liberal credit programs do not provide adequate assistance to homeowners and businessmen already heavily indebted, the bill would establish a loss-sharing arrangement whereby the Federal Government (50%), the State Government (25%) and the individual property owner (25%) would all contribute to the restoration of the damaged property.

This program should have the corollary effect of reducing flood losses by creating incentives for State and local governments to enact and enforce effective flood plain regulations. The Bill has passed the Senate and is now pending in the House Public Works Committee.

The Environmental Science Administration, in cooperation with other agencies, including OEP and OCD, has developed a proposed National Disaster Warning System.

The proposed system has a three-year implementation period which will provide for the recruitment and training of specialists, the manufacture and installation of complicated electronics equipment and a comprehensive program of education in cooperation with Federal, State and community officials and the mass media. When the proposed system has been completely implemented it is estimated that deaths from all disasters could be reduced by 50% and economic losses reduced by $100 million a year.

Review of United States Civil Defense Activities since last meeting, Office of Civil Defense (OCD Report, CEPC D/2-66).

Civil defense in the United States has been progressing steadily toward its major objective: fallout shelter for the entire population. Our continuing effort is to make maximum use of existing systems and resources rather than propose the implementation of new systems or the procurement of facilities and equipment dedicated solely to civil defense.

This year, we have requested $134.4 million for the fiscal year beginning July 1, 1966. FY 1962-1966 appropriations total $708.8 million. When this is added to the projected program through 1971 approved by the Secretary of Defense, the total is $1.5 billion for a protection system which could save up to 30 million lives in 1970. Let me give some examples of our current operational capability and of projected programs to improve that capability:

a. *Fallout Shelter*

The National Fallout Shelter Survey, the Small Structures Survey, and the Home Basements Survey are designed to locate and identify what exists. Nothing is expended for construction.

(1) To date, 147 million fallout shelter spaces have been located in existing structures, 14.2 million during the year ended March 31, 1966, and 1.8 million during the month of April. Owners of 107,000 buildings containing shelter have authorized public use or marking of the

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premises. 72,700 buildings with shelter spaces for 66.4 million persons have been stocked for an average of eight days with 40.1 million 14-day units of the austere shelter supplies provided by the Federal Government.

(2) The Small Structures Survey has identified almost 700,000 fallout shelter spaces, over 200,000 of which have PF of 40 or more and will accommodate 50 or more persons. These "50-persons-plus" shelters have been included in NFSS figures quoted above. The balance of nearly 500,000 spaces found is about 40% PF 40 and 60% PF 20-39. This survey is quite new and is planned for the whole country, in phase with Community Shelter Planning.

(3) The Home Basement Survey is aimed at the 25 million U.S. homes with basements. It is nearing completion in the first State to participate, Rhode Island. The questionnaire was mailed to 230,000 householders in that State, of whom over 70% have responded so far, disclosing the existence of 73,465 PF 40 fallout shelter spaces in 20,407 homes. In the PF 20-39 category of protection there were 395,625 spaces in 109,896 homes. Spaces are based on the average of 3.6 occupants reported on the first 125,000 questionnaires returned. An earlier test survey of 22,000 homes by the Bureau of the Census indicated that the response to questionnaires should reach 75%; that 10% of homes will have shelter of PF 40 or better, and another 65% shielding of PF 20-39. This survey will be extended to other States as fast as Census can handle the load and state governments request it.

(4) Community Shelter Plans are being prepared to make the best use of fallout protection located by the three surveys. Areas of shelter deficit will be more precisely identified by this planning as well as opportunities for expanding shelter capacity by use of Packaged Ventilation Kits and design slanting to be applied in construction of new buildings in such areas.

(5) Even though we expect to have found 234 million shelter spaces by 1971 for a projected population of 210 million, an estimated one third of the population would not have shelter with PF 40. Large areas of the country have neither shelter resources now in existence nor prospect of future construction in which the population could obtain standard PF 40 protection. However, there is a substantial amount of significant protection which, even though less than PF 40, e.g., PF 20-39 in home basements, would save several million lives. In the event that a decision is made to meet the projected standard shelter requirement, we are pursuing two basic approaches:

(a) We have proposed initiation of an experiment to increase the amount of shelter in new buildings by offering a Federal grant to owners of up to one percent of the total cost of project for the added cost of slanting the building design and construction to include additional shelter and agreeing to its use as a public fallout shelter.

(b) We will continue research and feasibility studies of the peacetime construction and the last-minute crisis construction of single purpose shelters in the worst shelter deficit areas.

b. *Emergency Operating Centers*

There are 2,011 EOC's in operation; 383 in preparation. Most are in existing public buildings. Many were completed without Federal financial assistance; 707 are being subsidized. These are direction and control centres for state or local governments providing fallout protection for continuity of government as well as essential emergency communications. Many are manned day and night in peacetime by regular elements of government with emergency assignments.

c. *Warning Systems*

Civil defense warning points and fallout monitoring stations are located in existing Federal, state, county and municipal facilities.

(1) 1,070 warning points are on direct land line communications from the NORAD Combat Operations Center. They can be alerted simultaneously.

(2) 57,500 radiation monitoring stations have been established at fire and police stations, at airports, hospitals and the field offices of other Federal agencies.

All are located in existing structures. The "Nationwide Natural Disaster Warning System" recently announced by the Secretary of Commerce uses existing civil defense warning facilities. Many local governments have used their sirens for disaster warning in the past.

d. *Manpower and Equipment*

Increasingly the manpower of the regular departments of Federal, state and local governments are given civil defense assignments. The mayor and his city officials form the nucleus of municipal direction and control groups at EOC's. Warning points are manned by regular police and firement; the same is true of fallout monitoring stations. The financial assistance programs, especially that which provides matching for personnel costs directly related to civil defense, support this trend and enhance the national capability to deal effectively with local disasters.

e. *State and Local Civil Defense*

Under the doctrine of Federal, state and local joint responsibility for civil defense, the Federal

agency must provide continuing support to the other levels. Policy and decision makers require up-to-date information on the nature of modern civil defense, the sharing of responsibility among all government levels, the new techniques and method for reaching objectives.

(1) All fifty States have active civil defense.

(2) 95% of all cities of 25,000 or more are licensing, marking and stocking shelters in existing buildings.

(3) 4,041 local jurisdictions with more than 85% of the nation's population have submitted civil defense program documents to establish their eligibility for continuing Federal support.

(4) Estimated expenditures for state and local civil defense are $72.5 million in 1966, of which the Federal government will provide only about 33%. Federal matching is not desired by all jurisdictions and does not cover all civil defense expenditure.

(5) 47 state governors have inaugurated professional programs of community shelter planning. The objective is to match people to shelters, project the growth and distribution of population and requirements for shelters. The project is under way in 57 planning areas and about to start in 104 other metropolitan areas. The project includes the provision of essential information to the public when the plan is completed.

f. *Military Support*

The support of civil authority in civil defense operations is an emergency task within the mission of all military units. In the 48 contiguous States the Army is the coordinating agency for the employment of military resources in support of civil defense. The responsibility is executed through CONARC, CONUS Armies and State Military Headquarters. The Unified Commands have similar responsibility in Alaska, Hawaii and Puerto Rico. To plan for and direct the conduct of operations in support of civil defense, 227 National Guard technicians have been authorized to augment State Adjutant General staffs.

Review of Civil Emergency Planning Activities in Canada since October 1965 (CEPC D/3-66)

Canada EMO

1. The reorganization which got underway last July, has now been completed and new accommodation occupied in the Centennial Tower, 400 Laurier Avenue West, Ottawa. The basic organization provides a Planning Branch, a Programme Implementation Branch and an Administrative Services Division. A copy of the Organization Chart accompanies this report. The Planning Branch carries out the continuity of government planning, technical design and protective construction, economic and communications planning and is administratively responsible for International liaison. The Programme Implementation Branch promotes and co-ordinates programmes concerned with operational readiness of emergency government, public information, technical guidance, training and exercises.

2. Two new positions have been established, Operations Support and Special Studies Section, and Programme Assessment and Evaluation Section. The former is in support of planning and the latter in support of programme implementation.

Canada Survival Plan

3. During the past six months, the Planning Branch has devoted much of its efforts to the development of a Canada Survival Plan, which reflects much of the work done by the Risk Study. A draft has been completed. The plan brings up-to-date the threat for the period 1966-71, outlines national objectives, planning principles, wartime responsibilities of governments (federal, provincial and municipal), and major emergency measures programmes. It provides for planning and programme scheduling over the period 1966-71. The plan will be associated with such classified documents as the Government of Canada War Book, Government Emergency Orders and Regulations, departmental readiness and operational plans.

Emergency Government Facilities

4. The Programme Implementation Branch, during the period under review, has carried out an extensive survey of existing emergency government facilities to determine their operational reasiness. A capital construction programme over a five year period has been approved. It provides for the construction and equipping of one Regional Emergency Government Headquarters, five Zone Emergency Government Headquarters and two Relocation centres, each year. A new Canadian Emergency Measures College is being designed for construction at the present Arnprior site. A budget of 1.5 million dollars for construction during each of the next five years has been agreed to by Treasury. This will give a total operational capacity of 10 Regional Emergency Government Headquarters, 10 Regional Relocation Centres, 34 Zone Headquarters and Central Emergency Government Facilities.

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Fallout Protection Survey of Canada

5. A nation wide survey of buildings is under way to determine the number of shelter spaces which could be made available for public use in the event of a nuclear attack. Funds have been budgeted over a four year period. A total cost of 1.5 million dollars has been estimated. Canada EMO is responsible for the technical planning and the Canada Department of Public Works for the actual survey work.

National Radiological Defence System

6. Discussions with Canadian Army indicate consideration should be given to integrating the Army fallout reporting system and the civilian RADEF System. A review of the national fallout reporting requirement is in progress and meetings are planned with provincial and municipal govenments to consider areas of responsibility, financial implications and training programmes. In the meantime, Canada EMO continues to purchase radiological instruments and to make these available to provinces on a 75 percent federal, 25 percent provincial cost sharing basis. The RADEF instrument maintenance and repair contract will be continued for 1966/67. Purchase and maintenance contracts for radiological instruments will approximate one half million dollars in 1966/67.

Urban Characteristics Analysis

7. This programme constitutes a series of surveys of all the main urban characteristics in each of the major cities in Canada. A total of 32 different characteristics are covered, such as land use, building density, population density, schools, hospitals. The first survey was carried out in 1963 for Vancouver. These maps have just now become available. Winnipeg and Montreal were surveyed in 1964. Ottawa and Windsor surveys are now in progress. Canada EMO provides the Canada Department of Mines and Technical Surveys with the funds to have the work undertaken. The actual work is done by contracts with universities. The survey is programmed at $30,000 per year.

Peacetime Disasters

8. The Federal-Provincial Ministers' Conference on civil emergency planning held in Ottawa, in June, 1965, supported strongly, the preparation and co-ordination of plans for peacetime disasters. This conference was followed in October by a federal-provincial study group for the exchange of information on the many problems involved in dealing with peacetime disasters. The Federal need for planning and co-ordination in this area became fully appreciated with the power failure on November 9th, 1965. On February 1, 1966 the Cabinet made the Minister of Industry and through him, the Canada EMO, responsible for co-ordinating the initial response to a peacetime disaster.

9. Canada-EMO chaired a meeting of national (volunteer) organizations—Red Cross, St. John Ambulance, Salvation Army, etc., to relate their respective roles in peacetime disasters. Canada EMO has prepared and issued a 'Provisional Guide on the Role of Federal Departments in Peacetime Disasters'.

10. The Manitoba Flood, 1966, has provided the scene for examining, assessing and testing current plans and procedures and Canada EMO is now co-ordinating the financial settlement arrangements between the federal and provincial governments.

Public Information

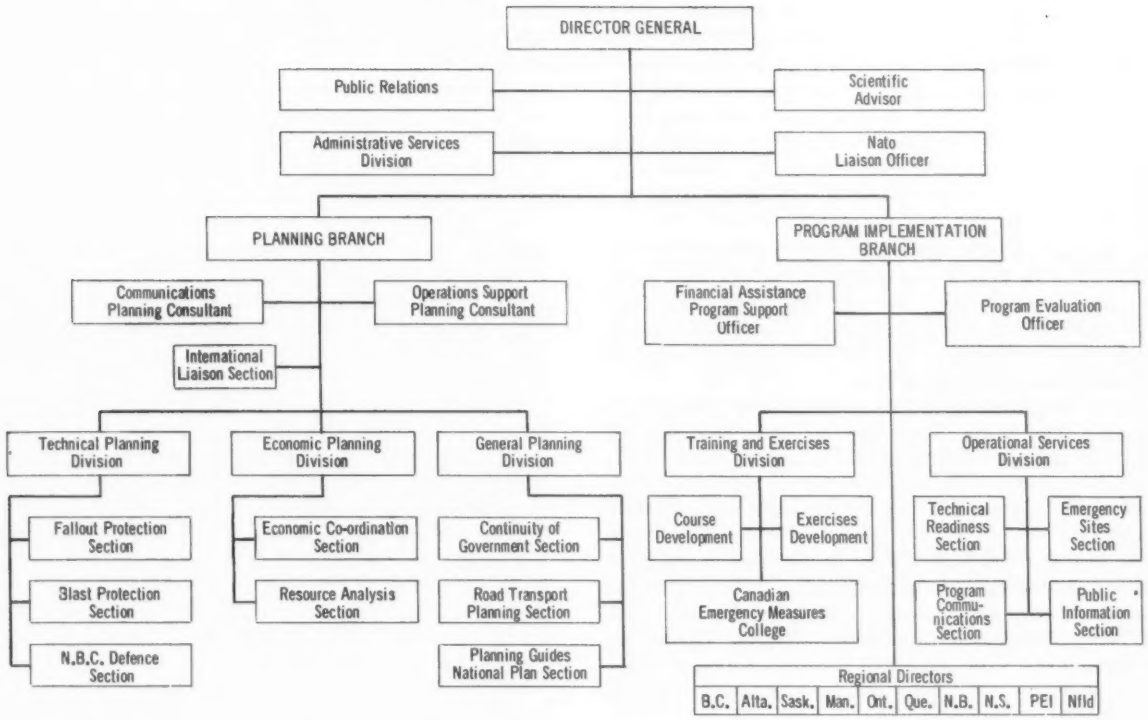
11. The Canadian public information programme emphasises the joint value to the public of emergency measures planning and co-ordination both for peacetime disasters and wartime emergency. This is being achieved by radio spot announcements, television clips and displays. A handbook on peacetime disasters is being planned. The National Film Board has been given the contract to produce a half hour image film using the Manitoba Flood, 1966, as the background. A programme of revision and up-dating of EMO survival publications is projected. Approximately $160,000 has been budgeted at the federal level for all aspects of public information and publications in 1966/67.

Financial Statement

FY Mar. 31	Fed. contribution to provs. & mun. FAP	Matching funds prov. & mun. FAP	Canada EMO Expen.	Est. Fed. Dept. c.e.p. expen.	Est D.N.D. c.e.p. expen.	Total Canada c.e.p. expen.	Total D.N.D. incl. c.e.p.	Total Fed. Govt. Approp.
				Millions of Can. $				
1964–65.....	4.9	3.0	2.8	5.4	5.0 (est)	21.1	1537.8	8046.0
1965–66.....	5.2 (est)	3.1 (est)	4.5 (est)	5.5 (est)	5.0 (est)	23.3	1536.7(est)	8636.0
1966–67.....	5.4 (est)	3.2 (est)	5.2 (est)	5.6 (est)	5.0 (est)	24.4	1572.7(est)	9522.0

Organization Chart

CANADA EMERGENCY MEASURES ORGANIZATION



12. The emergency broadcasting material which was recorded and positioned three years ago is being reviewed and will be updated.

Exercises

13. The current two year exercise cycle will culminate in a national exercise TOCSIN 66, on October 21st. This will be the fourth in the TOCSIN series, designed to improve the Canadian capability, at all levels of government, to take action in the event of a nuclear attack on North America. Each of the ten regions will conduct their exercise in keeping with their current capability. Play will not involve the public. All exercise activity will be co-ordinated by a Central Exercise Headquarters. Canada EMO is co-ordinating the participation of federal departments in the support of Department of National Defence which has an active part in NATO Exercise FALLEX 66.

Economic Planning

14. Cross-border consultation on emergency economic planning continues. A joint study of the likely hazard from nuclear weapons, as deduced from a study of 100 different attacks, will be completed in 1966. A contract will be let for converting a U.S. computer programme, known as 'Ready', to be run on equipment which is being installed in Ottawa at the Central Data Processing Service Bureau. During 1966/67, studies will be made of ways in which the U.S. computer programs 'RISK' could be used to assist Canadian planning.

15. The resources data for Exercise TOCSIN 66 will be assembled from resources information which has been prepared in co-operation with other federal departments. The results of the exercise will be critically analyzed and lessons learned applied to development of future economic planning. ▲

REFLECTIONS ON CIVIL DEFENCE AND SURVIVAL

by Wing Commander Sir John Hodsoll, C.B.

Sir John Hodsoll has compiled in twenty chapters his personal views on the important things which should and need to be done to develop a healthy civil emergency programme. The Canada Emergency Measures Organization is indebted to Sir John for his permission to reproduce his material in the EMO National Digest. It is being reproduced in serial form. Chapters 1 to 9 appeared in previous issues. Chapters 10 to 13 appear in this issue and the remaining chapters will be published in subsequent editions.

Chapter 10

Maintenance of Civil Government

In the last chapter, the control and direction of the Civil Defence Forces was discussed, but, as was pointed out, Civil Defence is only one aspect of Civil Emergency Planning. The broader picture will now be considered with special reference to the maintenance of Central Government direction.

It is important to understand what is involved in keeping the Home Front going. It is part of the over-all defence system of the country, but is concerned primarily with the survival of the population, with special emphasis on the maintenance of their morale.

In the first place they must be fed and in many, if not all countries, this will probably entail rationing —even if they are normally self-supporting—because of the difficulties of distribution. If food has to be imported, sea, rail, road and inland waterways transport systems may all be involved and only able to operate under grave difficulties.

Then there are the other necessities of life, that, even under the most severe conditions, must be provided by one means or another, even on the basis of the minimum requirements, e.g.: medical supplies and clothing, which may also involve imports from one source or another.

The needs of the Fighting Services must also be met, if they are to be maintained and able to operate, although it is possible that the role of the Army at home may be to assist the Civil Authorities.

A nice balance will have to be struck between military and civil needs, remembering that if the civil population is starved and deprived of the bare necessities for existence, they may refuse to continue to resist, which would rapidly ensure defeat. Both fronts are vulnerable and, of the two, the civil one could prove the most sensitive.

There will almost certainly have to be considerable interdependence between allies and need for the products of neutrals, if any still exist, as is highly probable.

A first requirement will be to try to keep the machinery of Central and Local Government in action, even if only on a skeleton basis and also the public utilities—water, gas, electricity and sewers—though the maintenance of even minimum services may be extremely difficult. Water is probably the highest priority, since means of heating and lighting can be improvised, e.g.: paraffin stoves, candles, etc., as can means of cooking.

As for the Central Government, it will be impossible to carry on normal parliamentary procedures, and government by means of a War Cabinet, representative of the various political parties or predominant political combinations, is probably the best answer. Such a Cabinet should be kept small—12 would be ideal —though some flexibility will be necessary. It must be remembered that the larger the Cabinet, the larger its staff, which will add to the difficulties and expense of providing protected accommodation away from the Capital, which will be essential.

It may be recalled that when plans were being made in Britain for the move of the Cabinet from London, in case of need, the task of getting Departments to reduce their staffs to what was considered to be the barest minimum, proved of the utmost difficulty. And as these staffs tend to continue to swell, these difficulties will increase.

While it may be impossible to name those who would form the War Cabinet until a state of tension has arisen, it is essential to decide on its size beforehand and the Ministries to be represented. Also to select the war time location and provide a proper Headquarters with appropriate protection and provision for sleeping, eating, etc., and reserves of food and water for at least one month.

Arrangements should also be made for suitable Cabinet or ex-Cabinet Ministers with a small staff to be located separately in suitable accommodation with the same provision as for the War Cabinet. These Ministers must be prepared to replace casualties or take over altogether, if the need arises; and should go to their war station during a time of tension, in case the Government should put off their own move until it is too late. All Ministers and their designated staffs should know where they are to go, and be prepared to find their own way there, if necessary.

The whole scheme should be made as foolproof as possible, especially the transport arrangements, which might be by air, water or land or a combination of two or more, depending on which are most likely to function best. Such a move could be taking place during an organized evacuation of the Capital or even a mass movement of refugees, factors that should be taken into account in planning.

Both Government Headquarters—and indeed any others—must be ready for immediate occupation, including the provision of duplicates of essential plans and other papers likely to be needed. If difficulties are found in getting suitable Headquarters on land, the use of an obsolete warship or merchant vessel should be considered. Both have the advantage of mobility and fallout protection could be provided without undue difficulty. Communications should not present any insoluble problems.

Before considering the actual composition of the War Cabinet, a brief appreciation of the situation with which a country might be faced is essential. Two periods are visualized, which may be called the "survival" and "post-survival". The former will encompass the actual attack period, and the time during which fallout will drastically curtail movement over certain areas; the latter when the fallout danger has passed or is much more limited and assuming no further attacks are expected—in other words the nuclear exchange has ended. How long the survival period will last is difficult to predict, but it may be for several days.

During this first period there will be little that can be done in the areas chiefly affected, though in other areas it may be possible to start preparations for the second phase. It is important that the Government broadcast news to the public and keep them posted with the situation, especially with the action they are to take, if such communication remains possible. But responsibility must be delegated all down the line, as much may depend on local initiative.

The second phase should be started at the earliest opportunity, when and wherever it is practical. The situation over a country may vary considerably. Some areas may be free from fallout, others affected in varying degrees, which will influence the time people must remain in shelter. There will be "dead" areas, where nothing can be done at all. The Central Government and the Region (or whatever form the second tier may take), should collect a broad picture of the situation as soon as possible, so that decisions can be taken as to priorities for action on previously prepared plans, remarks which will apply to the lowest echelons and all those in between.

With this sort of broad picture in mind, it is suggested that the War Cabinet might be constituted as follows:

Prime Minister.
Minister of Foreign Affairs.
Finance Minister.
Minister of Home Security, responsible for the co-ordination of all Civil Emergency Plans, including Civil Defence—unless under the Ministry of Defence; also Internal Security, including Police, but excluding matters properly the responsibility of the Minister of Defence.
Minister of Defence, responsible for the Armed Services and any para-military forces.
Minister of Transport, responsible for aircraft, shipping, inland surface transport of all kinds, including railways, roads, canals and inland waterways.
Minister of Fuel and Power, responsible for supplies of fuel of all kinds and also public utilities, except water and sewers.
Minister of Supply and Production.
Minister of Health and Welfare, responsible for civil medical services, including hospitals; water and sewers; evacuation and refugees, unless the latter require a special department.
Minister of Manpower, responsible for all questions of conscription and direction of labour.
Minister of Agriculture and Fisheries, responsible for all food supplies and rationing, if required.

This would give a War Cabinet of 11 and is probably the basic minimum. Other Ministers may be needed; the situation will vary with countries, e.g.: in Britain, a Minister of Commonwealth and Colonial Affairs. Other Ministers should not be in the War Cabinet, but should be organized, as suggested, in a separate group and form an alternative War Cabinet, if the need arose. Circumstances might force some variations, such as the creation of a Ministry of Reconstruction and Housing.

The permanent Councils of Alliances, such as NATO will have to put on a war footing, plans which should be worked out in peacetime, including their location, in the same way as for Central Governments. There will be need for Ministers of Cabinet rank to represent each member of the Alliance rather than Ambassadors, and they should be, at least, ex-officio members of their Country's War Cabinet.

The problem of the communications that the War Cabinet and other bodies vital to the prosecution of the war will need, are discussed in a separate chapter, and their maintenance will be an essential complement to survival.

It is assumed that Parliamentary business, as it is conducted in peacetime, will have to be temporarily suspended, as will normal procedures of State or Provincial Governments, Departments and Local Authorities. Every effort must be concentrated on survival and the post-survival operations, if the war is to be won.

The most ruthless pruning of staffs has been advocated. All those not needed should be dispersed to their homes or less vulnerable areas and an allowance made for the replacement of casualties. It must be remembered that it is not large numbers at the top that is going to help most, but large numbers at the bottom to help the fight back. That is where all unnecessary staff should be.

The basic requirements during this initial period will be minimal; in any case, there will not be the communications available for anything unconnected with the survival and post-survival phases.

Chapter 11

Maintenance of Industry and Public Utilities

The importance of keeping public utilities in action, even if on only a skeleton basis, cannot be overemphasized. The same remarks apply to key survival industries. The first problem is to decide what things are essential for survival, what stockpiles it has been possible to build up or it is planned to accumulate, what industries are concerned and whether they are located in vulnerable or less vulnerable areas, i.e.: exposed only to fallout or light blast.

There are two major requirements—military and civil—and both should have reserves, though there is the risk that they may be destroyed or it may be impossible to transport them to the areas where they are needed.

A careful survey should be made in peacetime of the existing stocks of raw materials likely to be required, how long they may be expected to last making allowance for damage and destruction, whether they are suitably located in relation to the places where they will be needed, taking into account probable transport difficulties. Also what must be imported and from which countries. In assessing requirements from outside sources, consideration must be given to their availability which will depend on the location of the countries concerned and if they are themselves likely to be fighting or will remain or try to remain neutral. A further point is whether it will be possible to import finished or semi-finished products, which will depend on the facilities and manufacturing capacity of the countries concerned. The availability of shipping and other means of transport will also be a governing factor.

Problems of financing foreign transactions will also influence the decisions to be taken; but consideration should be given to organizing a lease-lend system amongst members of an alliance and possibly other countries as well, as normal business transactions may be impossible. A system of exchange might be arranged or settlements left until after the war.

On the military side, efforts are being made in NATO to effect as much standardization as possible; and a good deal of success has been achieved. To attempt anything of the same kind on the civil side may not only be difficult, but is probably not so essential, since such things as medicines, drugs, surgical equipment, bandages, food and clothing can generally be exchanged without undue difficulty. It is important, however, to have an agreed list so that the basic survival necessities are generally known; and the extent to which any mutual support within an Alliance is likely to be effective and where help from outside may have to be sought. The United States has already made such an attempt and there also exists a list of drugs and surgical equipment common to NATO countries. It is natural that each country should have some special problems, but they can easily be isolated, so that the basic position in an alliance can be known with some degree of accuracy.

If an alliance is to attempt to be self-supporting within such limits as the resources of the various members permit, then there must be an organization for pooling surplus and surviving supplies and transporting them when and where required. Whether such a scheme should or could be extended to cover supplies from neutrals needs careful consideration; but with difficulties of transportation and also to avoid competition between allies, an extension on the lines suggested would have many advantages. The financial arrangements would also be simplified, if there was one system for pooling supplies, no matter from where they came.

Under conditions of nuclear warfare, it is thought that an alliance should not just be military in concept, but should be also a survival alliance, so as to present an overall united front. This conception should apply to NATO and the other alliances against Communism.

Nationally, it will be essential to have a stockpile of those things that are likely to be most difficult to produce and supply. Whatever importing arrangements may be planned, they are certain to be irregular in execution and subject to unpredictable delays, especially if ships have to be diverted to ports in neighbouring countries. To be on the safe side, a stockpile to meet a hiatus of 6 months would be sound policy. Unfortunately, to make provision on this scale would be costly and economically difficult for most countries. It is more likely that a target of about 1 month, which is the barest minimum, will be more practical. The Fighting Services usually aim at a higher level.

The difficulties of importing have been stressed and an alternative policy, worth considering, would be to aim at building up 2 to 3 months' stocks of those supplies having to be transported by sea over long distances, and 1 month for those coming from countries close at hand or for home products.

Another possibility, would be for all countries in an alliance to have one month's stockpiles or more, of certain items; and for the alliance to build up a reserve on a mutually financed basis, such reserves being located where they are least likely to be damaged or

destroyed and where transport arrangements would not present too many difficulties. Such a suggestion would be more applicable to Europe than the North American continent, since the United States and Canada have a long contiguous boundary and can make their own mutual aid arrangements without difficulty, though some importing might still be necessary.

Another method of stockpiling is to arrange for certain industries to carry larger reserves than they need, the difference being subsidized by the Government. This scheme has the merit of allowing stocks to be turned over commercially, thus ensuring they are fresh—where this applies.

As for the production, it would be wise to regard any that could be carried on during the immediate survival period as a bonus. This does not mean abandoning any attempt to continue production, but rather that it should be on a selective basis, having particular regard to the location of the industries concerned and the probability or possibility they might escape the worst damage.

Such a scheme should be organized in peacetime and will necessitate listing the vital survival requirements of both military and civil authorities and the factories where production is normally carried out. With this information, a credit and debit sheet can be produced, representing those establishments in which it is thought worth trying to maintain production and those where it is probably impossible or not in keeping with the risks involved.

The human factor must be carefully considered. Quite apart from the first objective of preserving life, there is the attitude of the workers, their natural anxiety for their families and the extent to which they will be prepared to go on working, remembering that fallout might keep them separated without news for some days, even though the factory is undamaged.

The fallout problem raises another matter of importance: the provision, at those factories where it is decided to continue production, of protected accommodation for the workers and staff to live, eat and sleep as well as work, if conditions should make it impossible for them to get home. Many factories have canteens and excellent first aid and medical arrangements to which must be added fallout protection as a minimum, and they could be made into more or less self contained units temporarily, at any rate. Stockpile of supplies of food, raw materials and other equipment would be essential to tide over any periods of isolation.

It is suggested that the Government, with the cooperation of managements—if this has not been done—should select one of two factories and have pilot schemes drawn up, from which general advice could be given. Factory schemes must, like all others, be capable of implementation at short notice; and, since they will cost money, the Government should offer inducements in the shape of tax relief.

The aim should be to prepare a list of establishments where it is proposed to try and continue essential survival production and where the necessary protective arrangements should be provided. An important adjunct to this scheme will be the question of switching factories from their normal peacetime work to that required for survival. Where a change is necessary, to decide what is required, how quickly the change can be made and what, if any preparations are necessary beforehand, e.g.: for the conversion of existing machinery, stockpiling of machine tools, jigs, patterns, etc.

In selecting establishments to continue production, not only must they be located away from probable main target areas, but they must have assured communications; if possible, there should be alternatives —road, rail, water or air—linking up the establishments with the areas or ports from which supplies of raw materials will come and to which finished products must be supplied.

So far as public utilities are concerned, the problem is less susceptible to flexible treatment, since power stations, transformers, reservoirs, pumping stations, gas producing plants, sewage works and outfalls are sited where their services are required. Electricity supplies are fairly flexible, as may be others where ring mains around large cities have been installed. As with industry, emergency plans should be worked out in peacetime, with the object of trying to keep minimum services in operation, to serve both the needs of the community and industry. Apart from the ability to switch from one source of supply to another, stockpiles of certain spare parts should be accumulated in the less vulnerable areas for each of the services.

Mobile plant will be a most valuable asset, especially generating, pumping, and water filtration units. Such apparatus was available in Britain to a limited extent in the last war, though it was little used. So far as gas supplies are concerned, any such facilities are probably impracticable, though investigation in the light of modern developments might be worth while, if they have not been undertaken already. The use of butane gas might provide an answer to emergency supplies in appropriate cases.

Pre-war plans should include the earmarking of those plants it is especially vital to keep in action, since it will be difficult, if not impossible, to do more than aim at the maintenance of limited supplies and probably only for restricted periods.

Industrial and public utility establishments must have their own civil defence organization, built up on normal lines and closely linked with, if not actually forming part of the local forces. There should be provision for a certain amount of internal and external protection, especially of vital machinery against blast and splinters, and for those on duty, shelters should be provided up to the standards already suggested.

Mobile repair parties should form part of the public utilities wartime organization, of which an appropriate

number should be attached to the main plants. Others might be dispersed with suitable equipment, so as to have a good chance of remaining in action. Such parties will mostly require road transport, though water and air transport could be important where available and will be less likely to interruption.

There are a few general points, based on last war experience, which are worth mentioning in connection with the protection of factories and other similar establishments:

(a) Sandbags should never be used to protect delicate or moving machinery. The reasons are clear.

(b) Raw materials, if of a suitable nature, can often be used to make blast and splinter proof walls or protection, both inside and outside buildings. They must be of a solid character, e.g.: ingots, castings, and must be firmly anchored.

(c) Tools, spanners and other objects can be turned into missiles by blast and add to the danger from splinters. They should never be left lying about loose.

(d) Glass is an especial hazard and was the cause of many casualties in the last war. It should be removed or suitably protected with wire netting or strips, which will either prevent it travelling any distance or fracturing into thousands of small highly lethal pieces. It should be remembered that blast has a suction effect which can pull windows outwards and other things as well. It is possible that the tremendous effect of nuclear blast may just blow everything straight in. But the effects of blast are very unpredictable and it can be deflected in most unexpected ways and go round corners.

(e) It is not known if a blackout policy will again be enforced. The trend seems to be to dispense with it. But, if necessary, the question of ventilation is of great importance, if working conditions are not to become intolerable.

(f) Small pillbox shelters if used, for example, for one or two persons watching some vital machinery such as a switchboard in a power house, must be securely anchored. It was found, in the last war, that steel pillboxes just resting on the ground were liable to be picked up by the blast and hurled considerable distances with their occupants.

In Britain, in the last war, special arrangements were made in regard to warnings, so that work could go on to the last minute and be resumed directly the danger had passed, whether the public "All Clear" had sounded or not. It is improbable that any such warning arrangements can be made in future. The most warning that can be expected is a minute or two and in some countries only a few seconds. With these limitations any sort of refinements are out of the question. If such a warning is possible, it greatly helps production.

There are certain matters, already mentioned in connection with the maintenance of public utilities, where experience and equipment of the Army may be helpful. Portable water carriers and filtration units are part of the standard field equipment; methods of dealing with the disposal of sewage and waste; portable generating sets for lighting and power, etc. Their advice should be sought in peacetime planning and arrangements made for their support in wartime.

Submarines have been used to supplement electricity supplies and naval vessels could, if available, help as water carriers and in other capacities. The Army often has special water carrying vessels.

These examples have been given to show the importance of enlisting the full support and advice of the Armed Services and knowing the ways in which they could help in the various civil emergency planning fields.

The problem is one of stockpiling, pooling supplies, making every effort to keep utility services in action, even if only on a skeleton basis, trying to maintain some production of vital survival supplies and finally doing everything to keep going those communications without which all plans may be greatly handicapped or impossible of execution.

Chapter 12

Maintenance of Communications—Part 1. (Wireless, Telephones etc.)

There are two kinds of communications; wireless, telephones, telegraphs, etc., and railways, roads, ships, aircraft and inland waterways. In this chapter the first type will be considered.

It is obvious that communications, like everything else, will be subject to heavy damage. Since many of the key points, like telephone exchanges are in the centre of probable target areas, great disruption must be expected.

The first requirement will be a careful survey to determine what communications are vital at the various levels, and which methods are most likely to remain in action and be most easily maintained.

As a top priority, the Government must be able to talk to the people. This need is put first because of its outstanding importance for maintaining morale: this means broadcasting facilities and television, if it is available. Steps must be taken, as they were in Britain in the last war, to see that broadcasting stations cannot be used by hostile aircraft or missiles to home on their targets. The United States has already got its Conelrad system in operation and has widely publicized the two

wave lengths to be used. It has been tested in exercises during the last few years.

The public must be able to receive these broadcasts and since electric power may be unreliable, battery sets will be essential. Fortunately, wireless sets have become almost a standard fitting in cars, so that many of the population should have a means of reception at hand; small transistors are very popular and an even better answer.

Broadcasting transmissions in a large country must be decentralized on a regional basis and communications between the central and regional stations will be of high importance. In small countries, it may be technically impossible, if there is only one main broadcasting station, to overcome the difficulty of providing a homing point for hostile aircraft. In that case, if there are allied countries close at hand, a joint scheme could be worked out to overcome this disability. It might even be possible to make arrangements with a neutral, though this is obviously a more doubtful proposition.

The Central Government must try to ensure minimum communications with its Allies, Dominions, Colonies and Mandated Territories, if it has any and with neutrals, especially those from whom it may hope to obtain supplies. Internally, they are needed with Regions, States, Provinces, etc. Teleprinters, telephones and wireless will all have their part to play, so far as they are available and can be kept in action; but other alternatives such as aircraft, helicopters, high speed launches and hovercraft may be invaluable. The important point is to ensure that whatever happens some communications are maintained on however reduced a scale.

The military authorities rely considerably on civil communications and their urgent needs must be met, probably on a high priority basis. It is important, however, that a proper balance be kept between civil and military needs and there is no question of the military needs overriding all others, save in a case of invasion or other crisis.

It will probably be impossible to meet any but a fraction of the demands, and the task of sorting out priorities will be difficult. Each country will have to make its own plans in accordance with its needs and capabilities. But a way of approach might be to list the requirements in blocks:

(a) Military, including Civil Defence
(b) Central Government and internal agencies, e.g.: Provinces, Departments, States, Regions, Local Authorities
(c) Public Utilities
(d) Transport Services
(e) Industry
(f) Miscellaneous

These blocks, which are not necessarily in the right order of priority, will have to be sub-divided, where appropriate, into external and internal requirements, and the method of communication proposed with suitable alternatives. The needs will have to be set against the facilities likely to be available where they are located, their liability to interruption from damage or fallout and priorities allotted accordingly.

The end product will probably mean the total prohibition of private telephoning and many other restrictions of all kinds on the sending of telegrams and cables. There is one special point to be emphasized. However difficult, every effort should be made to enable the public to communicate with one another by some form or other, even if only by a field postcard service just giving the bare facts that they are alive and well. Nothing is worse for morale than total lack of news, especially for the fighting services overseas. In the general disruption such a service may be difficult, but it is of vital importance.

In brief, the Government should evaluate their survival communication needs and then put them to the public telegraph and telephone authorities to see how far they can be executed. There will have to be a good deal of adjustment, but it is very important to get an agreed working basis.

It is important that exercises should be held to get people accustomed to an entirely new situation. This point is emphasized because, during the war, cases occurred of civil defence control centres being cut off during a raid and the staff feeling temporarily helpless. We are so used to good communications, which continue to improve, that people must be conditioned to the idea that more primitive methods can still be effective. Everything may have to be conducted in much slower motion and with much more reliance on local initiative. We are apt to think, today, that if something cannot be done in a hurry it is no use doing it at all.

There are a number of precautionary measures which can be taken and will help to keep minimum communications in action. Apart from the obvious though expensive device of duplication, mobile broadcasting stations or broadcasting from a ship might be of assistance. Telephone exchanges are often very vulnerable by being located on the tops of buildings and many will be in areas where evacuation will be necessary. Ring cables, with exchanges on the perimeter of target areas will be of great value. Mobile telephone exchanges such as are used by the Army with field telephones may have special importance. Loud speaker vans for local broadcasting may also have some value, when conditions permit.

It was found, in the last war, that direct lines were very reliable, despite the fact that repairs to exchanges were carried out most expeditiously. In future, however, the damage is likely to be so extensive that the carrying out of repairs on any scale during the survival period may be difficult and only possible to a limited extent. Nevertheless, mobile parties for repairs should form part of the protective measures. They should be located outside the probable main target areas with their transport and equipment, and provided with appropriate shelter and facilities for sleeping and feeding.

This problem, of what might be called emergency mobility, may be the key to keeping some minimum communications in action. Its possibilities are well known, but might be further explored in the light of developments with satellites and other modern devices which are now coming forward. Army experience will be especially valuable, as conditions will be very akin to operations in the field. The use of naval or merchant vessels should not be forgotten.

All establishments which it is planned to keep in action must have adequate protective arrangements. The personnel must be prepared to stay in shelter, if necessary, with full feeding, sleeping and other facilities. They should have some of the teams trained in monitoring and must keep in close touch with the local Civil Defence organization. They must be prepared to work under conditions of danger and be provided with suitable equipment for this purpose.

On the assumption that only the most limited communications can be kept in action, arrangements should be made for the local dissemination of news by every possible means. The wardens' service could have an important part to play. Despatch riders will be valuable and should be suitably equipped. The dropping of information by aircraft could be useful, if other methods are not available.

No attempt has been made to go into technical details. But the general principles have been outlined. Communications of some sort must be kept going, however primitive, and at all costs the public must know what is going on and what has happened to their relatives. Vital orders must get through. Because of all the difficulties the need for local initiative will be great and the local leader will be invaluable. The population must be reconciled to the fact that news will be scarce, must learn once more the art of self reliance and understand that they can still survive without television and all the other modern devices for undermining self dependence.

Finally, the use of "Ham" operators should not be forgotten. They have been co-opted into the United States Civil Defence organization and might be valuable in helping to keep up local area communications.

Chapter 13

Maintenance of Communications—Part 2. (Shipping, aircraft, railways, roads and inland waterways.)

This side of communications covers a wide field, since it includes shipping (ocean going and coastal), aircraft, railways, roads and inland waterways. The broad problem again, is to try and maintain communications adequate to enable a country to survive, which includes not only imports from abroad, but also internal distribution.

The importance of the various kinds of transport differs from one country to another. In Continental Europe, inland waterways play a vital part in the economy, whereas in Britain they are of minor importance in normal times, except in port areas. Where navigable, their value might increase considerably in time of war.

The various types of transport will be considered separately, though there must be considerable flexibility in their use and co-ordination between the various systems.

Ocean Shipping

Ocean shipping will be subjected to a number of hazards: submarine attack, bombing and fallout in coastal waters and port areas. It is assumed that convoy systems will again be of great inportance. In view of the losses which will be inevitable, it is also thought there should be a system under which allied shipping should be pooled. Arrangements for this should be made in peacetime, but will obviously take time to get into full working order, since elaborate control arrangements will be involved, both internationally and nationally. In the meantime, nations will have to operate their own shipping.

Every country will need its own shipping control centre or centres, which will have to operate jointly with the naval authorities and which must be linked with the appropriate Ministry or the Government War Room, or whatever agency or agencies are responsible for the distribution of supplies of all kinds. There must be an equally close liaison with the inland surface transport authorities and with coastal shipping.

On the International level, there will have to be shipping control centres at appropriate places, e.g.: for NATO probably one in Europe and one in North America. This practice was followed in the last war, so far as Britain and the United States were concerned and worked successfully. It must be borne in mind that supplies will not only be exchanged between members of an Alliance, but also between neutrals and Great Britain's Dominions and Colonies. The operation of the Common Market may facilitate such operations.

The protection of ocean shipping while at sea will be the responsibility of the naval authorities in co-operation with the Air Force, as in the last war. In future the "Atlantic Gap" should not exist as it did for some time, with disastrous results.

Convoy tactics are outside the scope of this book, but crews of merchant ships must be trained in fallout drill and should have an appropriate number skilled in

handling monitoring instruments. The master and officers must also have training which will enable them to interpret and use the information provided by the monitoring teams, so that the proper precautions can be taken for safeguarding life and preserving cargoes. Tactics against ordinary bombing should also be taught together with the best dispositions to reduce the effects of nuclear attack.

The training of crews of merchant vessels in anti-fallout and other precautions should be handled by the naval authorities, as also the steps to be taken to prevent contamination of crews, passengers and cargoes. This will entail a system of battening down and keeping portholes shut while passing through a fallout cloud. Air conditioning and other ventilation arrangements may require special treatment. Deck cargoes may also have to be avoided, unless they can be completely protected. Techniques have been developed for warships to deal with contamination which should, if possible, be adapted for use on merchant ships. It is important that adequate warning of fallout is passed to merchant ships sailing independently or in convoy, so that evasive action can be taken, if possible, by changing course. The principal fallout danger is likely to be in coastal waters and ports, or within 200 miles of the coast of any country under nuclear attack. It may well be necessary to change the designated port or ports of arrival, to avoid fallout or for other reasons, such as destruction or immobilization of the proposed port of arrival. Such warnings should be the responsibility of the naval authorities. Whether it will be desirable to keep fallout warnings secret or not is a debatable point. They could be broadcast like storm warnings, which would save a lot of trouble. It is doubtful if the receipt of such warnings will be of much, if any use to an enemy, unless submarines or other hostile craft could be homed on the convoy in time to launch an attack. But since convoys will be escorted, this advantage will not be all one-sided.

Other defensive measures may be required, such as the arming of merchantmen, the provision of blast and splinter proof protection and anti-gas precautions. But these are matters which should be decided in consultation with the naval authorities; though the assistance of the civil defence organization may also be required, especially with training arrangements.

Instructions to masters of merchantships, covering amongst other things, the various matters mentioned above, should be drawn up in peacetime. It may be desirable for agents and consuls abroad to have copies ready to be handed out if an emergency should arise. But the masters should be in possession of all instructions except those concerning wartime movements, which obviously cannot be issued until the time arrives.

Special equipment, such as monitoring instruments, protective clothing, respirators, etc., should either be held in appropriate stores ready for issue or better still, carried on board so that regular drills can be held.

To any country with a large merchant fleet, such as Great Britain, considerable financial outlay will be involved: while this should be the responsibility of the owners, they should be allowed tax rebate, as has been suggested in the case of industrial establishments.

Coastal Shipping

Coastal shipping may well have to play a vital role, if as seems probable, internal land and water communications are severely disrupted. The amount of such shipping which is owned by any country will vary a great deal, depending on the amount of coast line and other factors. Britain is especially fortunate in this respect, though other countries with a smaller coast line may have a large quantity of inland water transport.

There might be difficulties in attempting to pool coastal shipping, but there should be special arrangements under which one country could help another in case of need.

Coastal shipping has the great advantage that it can use small ports and anchorages, and does not require the more elaborate arrangements inseparable from handling most ocean going vessels. It is obvious, however, that the latter may have to make do with all kinds of improvisation, so far as ports and anchorages are concerned, if their usual haunts are put out of action.

Probably the greatest risk to which coastal shipping will be exposed will be from fallout, and it will be essential for the crews to be trained in the necessary precautions. Ideally, each vessel should be provided with monitoring equipment and have one or two members of the crew trained in its use. It is appreciated, however, that this provision would be costly and may be impractical. This problem should not be too difficult to handle, since ships could be held at their anchorages if fallout is covering their route; sailings could probably be regulated in accordance with the daily situation. There must, however, be arrangements for transmitting warnings to such vessels at sea of the presence of fallout clouds, or the likelihood of their sailing into a fallout area if their designated course is pursued. Such warnings should, if possible, contain alternative instructions in regard to their destination or suggested change of course, so as to avoid the risk of fallout if at all possible.

The warnings could be sent by wireless or visual signal. It would be important to arrange, in peacetime, the stations from which such warnings will be sent or displayed. Masters should be supplied with this information. In the case of coastal shipping, it might be easier for the agents to have this information which they could supply when the need arose. If warnings are broadcast, most coastal shipping would be covered. But it must always be remembered that broadcasting arrangements may break down, so that alternative means of providing warnings must be available: such as visual signals from coast watching stations, light houses, etc.

Since it has already been suggested that fallout warnings for ocean shipping should be the responsibility of the naval authorities, it would be appropriate for the same authorities to be responsible for coastal shipping as well, while at sea.

Whether it will be necessary for coastal shipping to sail in convoy, will be a matter for the naval authorities to decide; also, whether they will provide protection. If there is no likelihood of attack by fast coastal motor boats or aircraft, escorting may be unnecessary, though convoy sailing, even if unescorted, might have some advantages from the warning point of view.

The same remarks about avoiding deck cargoes and battening down, if there is a risk of having to pass through a fallout cloud, will apply as for ocean going shipping. And crews should understand the techniques of hosing and spraying down to get rid of contamination overboard.

It is important to disperse coastal shipping from main to secondary ports and anchorages if an emergency threatens, remarks that will apply equally to ocean going shipping. In fact, those in overseas ports unlikely to be attacked might be held until the situation has clarified. A policy of evasion may be important and plans should be made in peacetime.

The Government will have to exercise a close control over the movements of all types of shipping as well as the cargoes they carry. It will be necessary to have control arrangements set up in all ports which are capable of being worked, including anchorages. Detailed planning will be required in peacetime, with personnel in the ports trained in their wartime duties, and having the necessary dormant instructions for use in an emergency. Port authorities should be responsible for issuing fallout and other warnings to shipping in areas under their control.

Rail Transport

To what extent it will be possible to keep rail transport in operation is a matter of conjecture, but every effort should be made to this end, because of its ability to carry heavy loads long distances at high speeds.

Systems vary, but there is a general tendency to replace steam traction by diesel or electric. Any system which depends on electric power from outside sources will be the most vulnerable to disruption. It would be prudent to keep a reserve of steam diesel or self contained electric locomotives available.

Railways may be interrupted from a variety of causes, such as destruction of track, stations, bridges, marshalling yards, signalling systems, engine sheds, important junctions and rolling stock. Last war experience showed that the most sensitive spots were running sheds and engine depots: in other words, the destruction of motive power and rolling stock was the most difficult to replace quickly. Damaged track is probably the easiest to repair, provided the necessary reserves are available. Signal arrangements, if destroyed, can be improvised, even if there is a slowing down of traffic. In Germany, in the last war, mobile signal boxes were used to replace temporarily, those destroyed by bombing. Another point about railways is their flexibility. Although stations may be destroyed and routes into big cities blocked, there is generally an alternative which can be used. Germany developed this by-passing system with great effect. There are bound to be certain bottlenecks, e.g.: important junctions, tunnels, bridges, etc.; but last war experiences showed that in order to keep a railway system disrupted, it must be kept under constant attack at its most sensitive parts; or with some specific object in mind, e.g., the interdiction of the railways in Northern France before "D" day.

The situation in the future however, is likely to present a different pattern. It is probable there will be areas where all public and private transport will be destroyed. In this area it will be impossible to take any restorative action during the period and for some time afterwards. It may be possible to bypass those gaps, but it must be expected that the railways will terminate anything from 20 to 40 miles outside the main target areas.

Apart from physical destruction the other hazard will be fallout. If railways are to be kept going, there must be a proper anti-fallout system organized. Since the area covered by a fallout cloud is limited in extent, it may be possible for trains to avoid it by being diverted. They may also be able to pass through the cloud quickly or to avoid the heaviest areas.

It is important that signal boxes should be protected against fallout, if possible, and provision made for the staff to remain in them for some days, as reliefs may be unable to reach them. The closing of all windows on a train may give some protection and if a fallout cloud has to be penetrated, the danger might be lessened if it was met head on or tail on rather than on the flank, though this may be impossible. Train crews must have proper protection and all goods in open wagons should be well covered with tarpaulins or other suitable material.

The best answer will be to route trains to avoid a fallout cloud, or to halt them till it is past, if that is a better procedure, though much will depend on the time factor concerned. Alternatively, it may be possible to skirt them. But if a train cannot avoid the cloud, then it should pass through it as quickly as possible, rather than stop and experience the maximum concentration.

It is not known whether any experiments have been carried out with trains passing through a simulated fallout cloud, striking them in different directions, but it might be valuable to confirm the suggestions made. It may well be that it is immaterial which way the cloud strikes the train: it will all be contaminated just the same.

Any train which has passed through a fallout cloud will have to be decontaminated by hosing down, before the passengers are allowed to get out or goods are discharged from open wagons. This might be done in a siding outside a station, if the latter has some sort of cover which has given whole or partial fallout protection, or better still, a station which has not been in the danger area. It may be necessary to decontaminate the train crews and passengers, arrange for their monitoring and provide them with clean clothing.

It will be impossible to have facilities of this kind at all stations, and it will be necessary to arrange for certain stations to be specially equipped for this purpose. Many stations have washing facilities and improvisation should not present insuperable difficulties. In the absence of facilities on railway premises, the local civil defence organization should be called on to help.

Railways must have a civil defence organization with personnel trained in all the various skills and be provided with the necessary equipment. They should co-operate closely with the local civil defence organizations through which their systems pass.

There must be an emergency control system, which should be prepared to operate on a decentralized basis and even be ready to operate parts of the system in isolation, which may be necessary if large gaps are created by the bombing.

In the last war, a number of protective measures were taken, such as sandbagging of signal boxes, the provision of steel shutters and so on. Such meaures could still prove valuable in areas likely to suffer from blast and splinters, i.e.: the outer areas of likely targets. It would not seem worthwhile in those areas most likely to be completely destroyed.

The nerve centres of any railway system should have alternative locations, if they are situated in the centres of probable target areas. In the same way, there should be dispersal plans for engines and rolling stock from such areas. All practical steps should be taken to preserve as much as possible from damage or destruction.

As in continental Europe, arrangements should be made for the pooling of transport, and the reduction of customs and other peacetime formalities to a minimum. It is, in fact, doubtful if any such formalities can be carried out at all under conditions visualized or even whether any attempts should be made to do so. Everything must be concentrated on survival, and mutual aid must play an important part in helping to attain this objective.

There are certain complications which will have to be sorted out in peacetime, such as the participation of neutral countries in many peacetime arrangements. They must be faced, however, and the best arrangements made in the circumstances, though there may be difficulties in disclosing wartime plans to countries not members of an Alliance.

The fact that there are, in peacetime, widespread international arrangements for the operation of railway goods and passenger stock should help in organizing plans to meet wartime conditions and requirements, though there will be a need for a good deal of simplification of procedures. It will hardly be possible to maintain the careful statistical records necessary in peacetime. The whole object must be to make a rough and ready pooling scheme and to leave all the sorting out of what has survived to a later period.

It will be important to decide, beforehand, what lines it will be essential to try and keep in action, which must be those vital to survival—such as connections with ports, secondary ports and anchorages—those needed for the distribution of food and other vital necessities for military purposes.

Information as to the situation will be essential if this is to be done, and should be arranged centrally and on a regional basis. It is important to work out a skeleton control system, based on a Government appreciation of the areas of probable destruction, which should be known to those responsible and could automatically be put into operation. In other words regional controllers, or whatever they are called, should be prepared to act on their own initiative and in accordance with flexible plans laid down beforehand.

Inland Surface Waterways

Canals and inland waterways play a vital part in the economy of Central European countries, though to a much lesser extent in Britain. Their importance might well be revived under the circumstances of nuclear war, where they are navigable.

Many of the waterways of Central Europe are international in character, and it will be essential to work out a wartime plan under which pooling of resources will have to play an important part.

The preservation of the barges, lighters, tugs, etc., will be a matter of importance and complexity, especially the question of whether they should be withdrawn to the coast or dispersed along the waterways themselves during an attack period. Locks, aqueducts and canals, where they are carried on embankments, are especially vulnerable to bombing attacks, though whether last war experience would be repeated is a matter for speculation. It seems more probable that nuclear attack would be directed to the main ports of entry, e.g.: Rotterdam, but if delivered on an important stretch of the system would probably make a vast breach and put it completely out of action. Ordinary bomb attacks would have to be repeated to be wholly successful, to prevent repairs being carried out.

Traffic would be affected by fallout, and it is important to take steps to provide protection for crews, cargoes and operating personnel. While it may be possible to continue navigation during actual fallout, there may be many difficulties in operating locks, in

which case traffic would have to be tied up until such time as it was possible to continue. It might be feasible to halt traffic to avoid a fallout cloud.

Traffic will be liable to all sorts of delays. It is important that means of warning are available over the whole systems and the personnel concerned know what to do in the circumstances. It would seem that each country, through which the system or parts of the system pass, should be responsible for all the precautions and warnings in their territory, and also for the training of the operating staff, crews of tugs and other vessels of their nationals, working through the owners in the usual way. There will have to be close co-operation between countries and a joint scheme or series of schemes will need to be worked out. Neutrals may be involved in these arrangements, but since civil defence precautions are taken by most countries, there should not be objections to co-operation in these fields, as well as an interchange of warnings.

Monitoring arrangements must be available at ports and delivery basins, as well as at locks, and means of decontamination at terminals and intermediate places. Hosing down will still be an obvious answer and crews should be able to assist provided the necessary equipment is available, and they understand the dangers and the action to be taken. Cargoes should always be well covered to prevent fallout contamination. With proper training and instructions there is no reason why the fallout danger cannot be overcome.

The big question is whether to withdraw traffic during a state of tension or allow it to continue and hope for the best; also, what the attitude of the crews will be. Over some of the inland waterways there is also the risk that they might be in a combat zone and hampered by the destruction of bridges. These hazards have been experienced before, and there is considerable experience on which to draw as to the best way of carrying on under the most severe war conditions. Also the most vulnerable parts of the systems are well known and the most effective steps to try and keep them in action.

Although it might, on balance, be considered desirable to withdraw traffic and try and disperse it, it would seem to be very doubtful whether a decision would be taken in time, as such an operation would be a lengthy process and could not be done without becoming widely known. If it is possible to effect a withdrawal, wholly or partially, it might be wise to do so, or even just to stop fresh traffic proceeding inland, and subsequently to organize movement in accordance with the possibilities of the situation. It might also be feasible to use certain of the vessels for coastal work, if it should prove to be the best course in the long run.

It would be advisable, in view of all the risks, to provide blast and splinter proof protection for lock keepers, other operating personnel and machinery at such vital points as experience has shown to be desirable, as well as protection against fallout; and to provide decontamination facilities for any apparatus that has to be operated out of doors. The use of tarpaulin or other suitable fallout resisting covers would be a great help and might expedite operations.

It is clear that the importance of inland waterways will be very high, as apart from their normal economic value, they might be one of the most reliable means of transport in all the circumstances, if they can be kept in action.

Road Transport

This form of transport is more essentially national than any of the others, though it has an international aspect.

It will be desirable to arrange for as much dispersal as possible, and especially to have transport pools available at those places, such as ports of various kinds, food depots, etc., from which survival requirements will have to be distributed.

If road transport is to be kept going, all loads not in covered lorries, should be protected against fallout in the same way as open railway wagons, and drivers warned of the dangers. There will have to be a system under which drivers in transit should receive such warnings, and either be given alternative routes or halted until the situation has clarified.

A road intelligence organization will, therefore, be needed, which might be operated by the police, or the civil defence organization, and the information distributed to all those concerned.

Arrangements should be made by the owners for the decontamination of lorries and their loads by hosing down, or alternatively civil defence could be called in to help. But it is better to have such arrangements at a suitable number of depots all over the country, away from target areas. Driver's cabs, if incapable of being closed, should be provided with means of giving fallout protection. There must also be cleansing and the usual facilities at these depots for lorry drivers and their crews.

Lorry depots should be selected having regard to suitability for ease of co-ordination with other forms of transport, and especially to those feeder services which they are most likely to be able to maintain. There must be the greatest flexibility between all forms of transport for inland purposes, and journeys may have to be completed by using various forms of transport.

Provided communications are working, the obvious answer is to have a central and regional intelligence bureau, where the whole transport situation can be assessed and the best means and routes selected. On the other hand, if communications break down or are difficult, the arrangement of depots should be such that local decisions can be taken. It may well happen that transport will have to be organized on a local area basis; in fact, the pattern that may emerge after a nuclear attack, will be pockets of resistance as it were,

and there would seem to be no reason why a skeleton plan should not be drawn up on this basis in peacetime. Centres unlikely to be attacked, even though liable to fallout, might be selected as such centres of resistance and sufficient transport earmarked for them. Authority to requisition will be needed and should be vested in the appropriate authorities to be used in time of emergency, since private cars and other forms of local transport e.g.: buses, coaches, etc., will almost certainly have to be pressed into service.

Road transport is probably the most flexible of all, and should be organized on a national, regional and local basis, and assuming fuel to be available, will obviously play an essential part in a country's survival.

It is likely that international road transport may have an important role, and mutual support plans between allies should be carefully considered.

To what extent public passenger road transport can be maintained is another speculative matter. It may be possible to run some services in areas where only fallout or minor damage has occurred, but it should be organized as a survival service, i.e.: in connection with factories that are being kept in operation, for evacuation and other urgent requirements. Any attempt to maintain services such as are normal in peacetime will probably be out of the question. Again, there should be depots in areas which are likely to form pockets of resistance, and the facilities for the decontamination of vehicles, passengers and crews must be arranged on the lines already described.

It would seem feasible to make a broad survey of the country and split it up into areas where complete or heavy damage is probable, and other areas where the main risk will be fallout. In other words, to plan a series of pockets of resistance and to try and see that in them are all the necessary facilities and depots. The fight back will have to come from the country districts, which will be the key points in the survival programme.

Aircraft

Aircraft will be a vital means of communication and their preservation of the highest importance. One of the first things will be to arrange for the dispersal of those aircraft which normally operate from airports in areas where they are likely to be destroyed by attacks on big centres of population. Such dispersal, in small countries, will almost certainly have to be arranged on an international basis, and may involve overseas journeys. The military authorities will require a number of civil aircraft for use as transports and will requisition them for this purpose.

The long and medium range aircraft should be got to safety, as far as possible, but in locations from which they can still be operated on behalf of the owner country or on a pooled basis between allies. Short range aircraft are probably best kept in the home country, or, if that is too small and there are difficulties, they might be garaged by mutual agreement in a country near by, having better dispersal facilities.

Helicopters will be in great demand for all sorts of purposes. They are rather scarce in Britain outside the Armed Services, and not all that numerous even there. Commercially their development has been slow, presumably because of their cost and limited carrying capacity. Nor is there anything like enough capacity amongst free world alliances. It is essential that the civilian authorities responsible for the defence of the Home Front get a reasonable share of this type of aircraft.

Light aeroplanes may also have considerable value for communication purposes, and arrangements should be made with flying clubs, in co-operation with the Air Force as necessary, for an allotment of machines and pilots and maintenance staff. They will be useful for reconnaissance purposes, and their ability to land in a small area is an important asset. They could also be used for aerial monitoring of fallout areas, in the absence of helicopters. The United States has already gone a long way in enlisting the co-operation of private fliers in their civil defence organization, an example that could well be followed.

A new development is the "Hovercraft". Just what their capabilities will be is not yet fully clear, but they would seem to have considerable potentialities for communication purposes of various kinds and also for carrying purposes on a limited scale.

In dire emergencies, the possibility of using gliders should not be forgotten, although they are at the mercy of the vagaries of the weather. They coud however, glide over a contaminated area and take urgent messages, when all other means have failed.

Although most big airports are some way out of the main target areas, they are generally near enough to be subjected to considerable damage and possibly the heaviest fallout. They may be requisitioned by the military authorities. Efforts should be made nevertheless to keep some of them in action, and especially those least likely to be seriously affected by attacks on main targets. If they are taken over by the military authorities, they might themselves become prime targets.

Where it is decided to try and keep airports and landing grounds in action, it will be essential to organize the usual civil defence precautions for the operating and maintenance staffs, and also to have decontamination arrangements for the aircraft. Shelters should be provided at least against fallout. Control towers, which are essential to aircraft operations, are extremely vulnerable: it may be difficult, if not impossible to give them any worthwhile protection without destroying their usefulness. Investigations might be carried out as to whether the main part of the operational staff and their equipment could be located underground, with an observation post protected with steel shutters. This

suggestion may be quite impracticable, but the importance of keeping air traffic moving is so high that any possibilities should be examined.

Aircraft will be required for long and medium distance communication purposes, and will also have a number of operational roles of which communications, reconnaissance, monitoring and troop movements may be specially mentioned.

It is obviously essential to have a well co-ordinated transport scheme, based on an appreciation of the situation to be faced, the forms of transport most likely to be able to operate and carry out the vital survival tasks, the best places to base them so as to reduce losses and where maintenance facilities will have some chance of remaining in action.

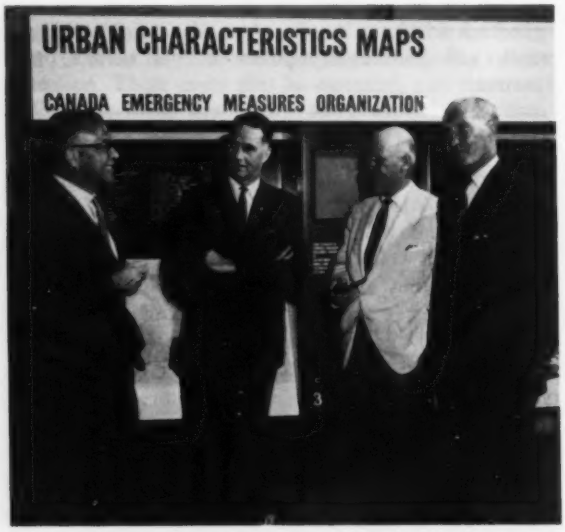
(To be continued)

REGIONAL DIRECTORS AT SEMI-ANNUAL CONFERENCE

Canada Emergency Measures Organization Officers who represent the federal organization in each province met at the Canadian Emergency Measures College, Arnprior, Ontario, recently for a five-day semi-annual conference on Civil Emergency Planning. The ten Regional Directors met with the Director General of Canada EMO, Mr. C. R. Patterson, and other Ottawa officers to discuss such subjects as provincial activities and programmes, emergency exercises, surviving planning, emergency government, fallout surveys, radiological defence, communications and assistance in peacetime disasters.

Mr. C. R. Patterson; Mr. M. R. Harries, Ontario; Mr. I. H. Deyman, Manitoba; Mr. H. J. Bernatchez, Quebec.

Mr. A. C. Ross, New Brunswick; Mr. A. W. Rogers, Prince Edward Island; Mr. C. R. Patterson; Mr. A. F. Wigglesworth, Nova Scotia; Mr. W. Pearce, Newfoundland.



Mr. C. R. Patterson; Mr. D. J. Burke, Saskatchewan; Mr. C. R. Boehm, British Columbia; Mr. E. Atkins, Alberta.

TAKING NO CHANCES

by RUSSELL WATSON

Staff Reporter of The Wall Street Journal

This article appeared in The Wall Street Journal of January 12, 1966. It was reprinted by the Office of Civil Defense, Washington, with permission of The Wall Street Journal, and is reproduced here with permission of the Office of Civil Defense.

Hudson, N.Y.—Quietly, and sometimes secretly, many of the nation's biggest companies are building alternate headquarters safe from nuclear attack. Buried underground or dispersed away from big target cities, they would be vital in keeping the economy functioning if ever H-bombs fall.

Near here, for example, a mammoth corporate bunker lies hidden in the hollowed-out core of Iron Mountain—protected from blast, heat and radiation by countless tons of rock, soil and iron ore. A 28-ton steel door in the mountainside swings open, and a visitor wanders through offices, kitchens, dormitories, communications facilities. New York, 115 miles to the south, could be incinerated but Iron Mountain offers protection against all but a near-direct hit by a multi-megaton weapon.

It is a second home for several companies, among them Standard Oil Co. (New Jersey), Manufacturers Hanover Trust Co. and Shell Oil Co. Most of Iron Mountain's 700 "customers" only rent storage space for vital records and documents, a common enough practice in the nuclear age. But the three firms named maintain elaborate subterranean headquarters as well, where selected key employees and other corporate bomb survivors would live and work after an attack. Across the country, a growing number of other concerns are adopting the alternate headquarters concept, too.

Banks Button Up

"It's safe to say now that almost all of the 500 top corporations have some sort of alternate headquarters arrangements," says Virgil L. Couch, assistant director for industrial participation in the Office of Civil Defense. The Federal Reserve Board, which urges banks to take protective measures, says 19 of the nation's 35 biggest banks now have alternate headquarters.

Some of these command posts are spartan indeed; a records storage vault, a small office with two or three desks, a few cots, perhaps a camp stove and some canned or dehydrated food. But others are designed as full-fledged nerve centers crammed with facilities and capable of housing scores of employees for extended periods. A look behind the massive steel door in Iron Mountain reveals such detailed planning.

Jersey Standard's facility, for example, can accommodate 200 people in 50 bedrooms and dormitories. It is entered initially by an elevator that descends inside the mountain, but thereafter a visitor must move on foot through a maze of corridors winding through six different levels of the structure. Jersey Standard wants its employees to hoof it; climbing back and forth from level to level may be the only exercise they are able to get for weeks.

Subterranean Music, Too

Once inside, it is hard to tell that the headquarters are underground. Walls are painted in a variety of bright colors, and vivid prints adorn them. Offices look much like those in modern skyscrapers. There is also a lounge area, a medical section complete with examining room and hospital beds, and a "music" room, where easy chairs and a red-and-gold couch invite comfortable listening to piped-in concerts.

Next to the dining room is a shiny, full-sized commercial kitchen stocked with enough food for 30 days. A communications room is equipped with radio, telephone, teletypewriter and Telex communications gear. The headquarters has its own well and can generate its own electric power.

The entrance to Shell Oil's bunker is lined with artificial flowers and colored spotlights. The main office contains about 40 yellow desks with stylish wooden tops, and the entire layout has a cozy "country" air. Shell is now busy installing a world-wide communications system in the bunker and has already put executives through dry runs as practice for running the facility.

Bombed-Out Branch

So has Manufacturers Hanover, which dispatched 10 of its officers to Iron Mountain 16 months ago for an exercise. There they "reconstructed" the accounts of a branch bank which theoretically had been destroyed. Using duplicate records stored in the alternate headquarters, they had complete success in identifying customer accounts and came up only $6,800 short in tracing the branch's outstanding loans. "For our first attempt at reconstruction, it was a huge success," says John Herrick, assistant secretary.

Manufacturers Hanover has picked no staff to man its bunker. As things stand now, its personnel department would select the staff from those left alive after an attack, giving preference to operating officers and their assistants. The bunker can house only 24 people, so families could not be taken.

Other concerns already have selected key employees. This raises a knotty problem: Who shall the chosen

people be? Some companies hope to be able to man their centers at the first sign that war might come. Thus, those forewarned would have a far better chance of staying alive than those deemed unessential and left in the city to brave the bomb. And even if the selection is made after an attack, those picked would be more likely to survive in underground safety than those left outside. The problem is even more acute at those companies which plan to house employees' families, too.

Jersey Standard, which plans to house families, has faced the problem by assigning skeleton crew functions to certain job slots, not to individuals. So it's possible for a man to get a promotion and find he no longer has a desk at Iron Mountain. "I have nothing against vice-presidents," says Chester O. French, assistant security administrator, "but we need operating specialists to run the operation. The guy who knows most about a vital function goes to Iron Mountain; if he's a vice-president, fine. If he's a clerk, that's fine too." Other companies, including Hughes Aircraft Co., follow this rule.

Clerks, secretaries, and other lower-level people are indeed among Jersey Standard's chosen people—and so are the president, the chairman, and the entire board of directors (all of whom are full-time Jersey Standard employees). Double bedrooms with semi-private baths are assigned to high-level personnel and their families, while those of lower rank would live in dormitories dubbed the "slave quarters" by the construction crew that built the headquarters. The Iron Mountain command post is the company's second alternate headquarters; the first was set up in what once was a nursing home in Morristown, N.J., in 1952. With the advent of the more destructive H-bombs, Morristown was ruled too close to New York City for comfort.

Status Symbol

Though companies strive to avoid the appearance of special privilege for those selected, it's perhaps inevitable that a skeleton crew assignment has become a status symbol comparable to the executive washroom key—at least at some concerns. "Listen, you're a nobody in this corporation if your name isn't on a desk at alternate headquarters," says an executive of one firm.

In some cases, emergency staffs have more than one location to choose from. Key personnel at the New York office of American Telephone & Telegraph Co., for example, carry wallet-sized maps and alert plans showing escape routes to two underground bunkers north of the city. One is east of the Hudson River, the other west. AT & T keeps their exact location secret, since both contain "sensitive and vital" communications equipment that an enemy would want to knock out. If there were not sufficient advance warning of an attack, AT & T people also could gather in the basement of the company's building at 195 Broadway, in an area fitted out as another provisional headquarters.

For "survivability" purposes, AT & T maintains survival quarters for several of its segments, including corporate headquarters, the long lines department, the operating companies of the Bell System, and AT & T's manufacturing arm (Western Electric Co.). The latter has an alternate headquarters located under its engineering and research center in Hopewell Township, N.J., where 100 survivors could live for two weeks and direct the operations of far-flung manufacturing plants.

Guarding Against Blast

The Western Electric command post has a damage assessment center, full communications facilities, radiological monitoring and decontamination gear, fallout filters, and vents that would close automatically during the powerful pressure wave generated by a nuclear weapon, to give blast protection. There also are water and fuel tanks and emergency diesel power. A 400-foot hill shields the building from all directions except the southeast.

AT & T's long lines department also is dug in. It maintains a string of subterranean buildings spotted along its coast-to-coast blast-proof underground cable route, completed about a year ago. And the Bell System's operating companies have alternate headquarters, too.

Like many other firms, Hughes Aircraft is counting on dispersion to insure corporate survival. Hughes has designated alternate headquarters at plants in Santa Barbara and Fullerton, Calif., and at a plant in Tucson, Ariz. In the event of disaster, the company would turn to Santa Barbara first. If that plant were in operable, it would try to use the others, in order. The last resort is a command post located in the basement of the city hall at Bakersfield, Calif.

The Transportation Quandary

Socony Mobil Oil Co., also counting on dispersion, has six "emergency management centers" located in existing manufacturing and marketing locations. The company hopes to man all six and operate them on a decentralized basis; each would be staffed by local personnel and executives imported from New York headquarters.

How to get them there? This matter plagues many companies. Certainly all-out nuclear attacks on U.S. cities would make transportation a nightmare, and companies with alternate headquarters concede that many of their key personnel may not be able to find their way out of the confusion if they survived the initial attack. Many firms count on using company planes, helicopters or even commercial air transport, and the locations they select for alternate headquarters are easily accessible by air, road, and even water. At best, however, they can only hope their chosen people show up.

Such difficulties help convince some companies that an alternate headquarters isn't worth the trouble. "I don't see how you're going to get people there before a nuclear attack—there probably won't be much warning—or afterwards. For another, it's a pretty agonizing thing to decide who is going to staff a survival headquarters," says an executive of one big manufacturer with no survival center. Another executive adds: "If the bombs come, there won't be anything left to administer."

Obviously, most of the nation's biggest corporations disagree. Their operations, they say, are too numerous and too scattered to suffer total obliteration. An alternate headquarters, it's reasoned, is necessary to pull the remaining pieces together. Hence U.S. Steel Corp. remains dug in at an abandoned quarry 60 miles north of Pittsburgh, Chase Manhattan Bank puts the finishing touches on a "reconstruction room" 55 miles north of New York City, and other concerns pursue plans of their own.

A Few Cots, Then . . .

"The alternate headquarters idea is growing like Topsy," says A. Douglass Walker, executive vice-president of Iron Mountain Security Storage Corp., which owns Iron Mountain and rents space in it to corporate customers. "A corporation starts with a records protection program, somebody brings in a few cots and some food, and the next thing you know, they want a full-scale operating office." L. E. Yont, president of National Storage Co., Boyers, Pa., says: "There isn't much sense in a records protection system unless you also have a place where the remainder of management can pull a company together." National Storage also rents subterranean facilities to business.

Iron Mountain, now about 80% occupied, is considering adding communal living quarters to its underground space. The company already runs a hotel-like operation, employing 22 people in its special services department—a chef, maids, kitchen help and others. Now the company is developing a cave near Kingston, N.Y., presently used for growing mushrooms, as another protected site.

What is done with an alternate headquarters when there is no danger of war? Mr. Walker reports that several tenants have used their Iron Mountain bunkers for business meetings. "You can't help but relax here," he says. "You can't help but feel secure, you can't help but get the perspective you want."

"Even without windows?" asks a skeptic. ▲

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"Oh, dear! Hadn't we better buy transistor radios?"

Editorial Opinion

Peacetime Role for EMO Welcome

It is always one of the chief irritations and concerns of organizations or bodies which are created for and which perform "crisis" operations that these bodies are generally held in such low regard in times of non-crisis.

The wartime soldier, in action or not, is feted, applauded, acclaimed—for the most part—because he is serving in a time of crisis. The public is conscious of the crisis, is conscious of the soldier's role and value, and is grateful. The peacetime soldier, in action or not, is seldom so acclaimed or applauded. In a period of relative non-crisis his value, his role is not recognized.

All of this is relevant in regard to the Emergency Measures Organization, of which there is a branch in the Sault.

The EMOs were established about 1960 for—or this was the impression conveyed to the public—the co-ordination and implementation of special measures in the event of a nuclear emergency, presumably, a nuclear attack.

But there is not at this time an atmosphere of nuclear emergency. The public is unconcerned, apathetic, cold to the dangers of nuclear attack —possibly because in recent years the danger of nuclear attack has subsided somewhat, possibly because of optimism that there never will be an attack or pessimism that nothing could be done anyway.

Therefore, like the peacetime soldier, the Emergency Measures Organization, an organization created for a crisis and existing in a non-crisis atmosphere, does not excite the public or command the public's support.

For all this, it is good news that the Sault Ste. Marie Emergency Measures Organization is thinking of embarking on a program which could result in its participation, along with the participation of 14 other surrounding municipalities, in the promotion of a "good-neighbor policy" that will result in co-ordinated and co-operative programs in time of peacetime emergencies—such as fire or flood, for instance.

It's good news for these reasons. The EMO can serve a very useful purpose in the Sault and surrounding area with a program of this type. At the same time it can be kept in a certain state of readiness should there ever be any nuclear emergency. And, of course, by proving its usefulness, the EMO will better acquaint the public of its role and value—in any circumstances.

If the Emergency Measures Organization were to remain almost solely an organization restricted for use in a nuclear emergency it is not easy to see the justification of its existence, and it could be that this would lead to the EMO's demise. This would be a shame—especially considering the small cost to the community of the maintenance of this organization. (Cost of the Sault EMO for 1966 is an estimated $3,000.)

However, with the implementation of an EMO program which would see the organization's purpose modified to suit a peacetime emergency need of this community and of neighboring communities, public support and recognition should assure its continued existence—both for its new role and its original role.

The peacetime soldier, little as he is appreciated, does perform a very necessary and very valuable service, and he is ready when major emergencies do arise. The same applies, or should apply, to the Emergency Measures Organization.

STAR
Sault Ste. Marie, Ontario
April 1, 1966

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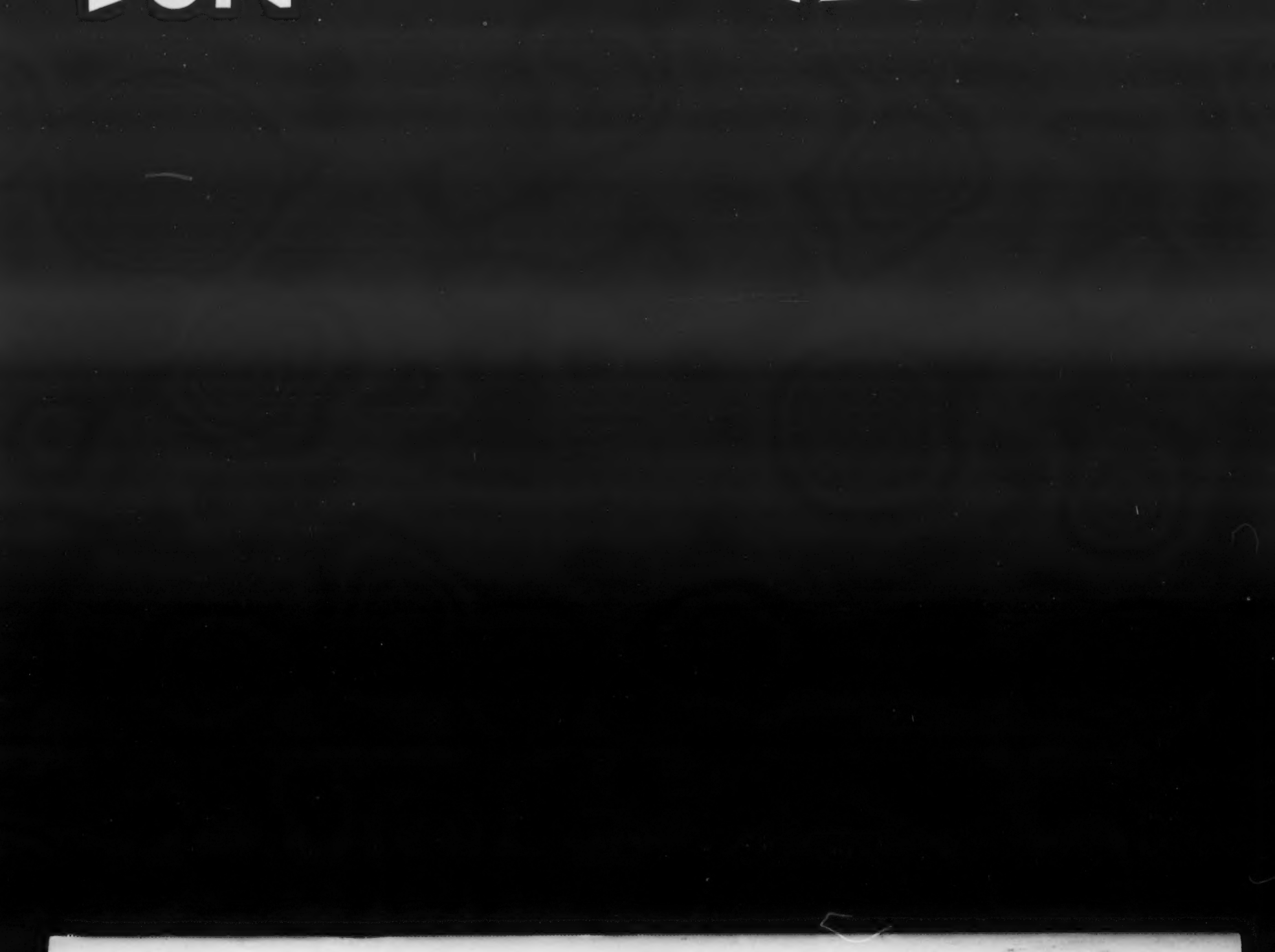
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